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AUTHOR	Lonergan, James M.
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ABSTRACT

The "digital divide," the separation between those with access to new technologies and those without, is seen by many as one of the leading equity issues in the United States. Computer and Internet access varies widely across the United States, with better educated people, those with more money, and whites more likely to have Internet access. In the early years of the Internet, schools with lower concentrations of poor students and suburban schools were more likely to have Internet access, but by 1996 all schools were equally likely to have Internet access. Urban schools, however, remained more likely to have more students per computer with Internet access. Underserved communities are gaining access to the Internet, but there are four significant content deficiencies for these communities: (1) lack of local information; (2) literacy barriers; (3) language barriers; and (4) lack of cultural diversity in Internet material. Public policies and private initiatives are attempting to expand affordable access to information resources in both homes and communities. The Education rate (E-rate) program is perhaps the best known universal service initiative. This program provides discounts on certain telecommunications services to eligible organizations. Other programs include several sponsored by the Federal Communications Commission and the Commerce Department. (SLD)

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INTERNET ACCESS AND CONTENT FOR URBAN SCHOOLS AND COMMUNITIES

James M. Lonergan

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ERIC CLEARINGHOUSE ON URBAN EDUCATION

DIGEST

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INTERNET ACCESS AND CONTENT FOR URBAN SCHOOLS AND COMMUNITIES

Internet access is becoming increasingly important for full participation in the economic, political, and social life of the U.S. Computers and the Internet are revolutionizing the ways people learn, communicate, and earn a living. Therefore, the "digital divide"—the separation between those with access to new technologies and those without—is seen by many to be one of this country's leading equity issues.

Extent of Computer Use in Communities

Computer and Internet use varies widely across the U.S. (Hoffman & Novak, 1998; U.S. Department of Commerce, 1995, 1998, 1999):

- Better educated individuals are more likely to be connected. In 1998, college graduates were eight times more likely to have a computer at home and nearly 16 times more likely to have home Internet access than those who did not complete high school.

- The computer gap between high- and low-income Americans is large and increasing. Urban households with incomes of $75,000 or higher are over 20 times more likely to have access to the Internet than rural households at the lowest income levels, and more than nine times more likely to have a computer at home.

- Whites are more likely to be connected than African Americans or Hispanics. Whites are more likely to have access to the Internet from home than are African Americans or Hispanics from any location. For every ten white households with Internet access, only four African American and Hispanic households have such access. However, for those with incomes of $75,000 and higher, the difference among whites, African Americans, and Hispanics has narrowed considerably in the last few years.

In addition, the disparity between individuals with access to new technologies and those without access is widening (U.S. Department of Commerce, 1995, 1998, 1999):

- The gaps in Internet access between white and Hispanic households, and between white and black households, are five percent larger than they were in 1997.

- The digital divides based on education and income level have also increased. Between 1997 and 1998, the divide between those at the highest and lowest education levels increased 25 percent, and the divide between those at the highest and lowest income levels grew 29 percent.

Computer and Internet Access in Schools

Extent of Connectivity in Schools and Classrooms

In 1994, the White House's National Information Infrastructure Initiative challenged the nation's schools and classrooms to connect to the Internet by the year 2000. In fact, the proportion of public schools connected to the Internet has increased each year, from 35 percent in 1994 to 95 percent in 1999 (U.S. Department of Education, 2000).

In the Internet's early years, access varied by school characteristics: secondary schools with lower concentrations of poor students, and suburban schools, were more likely to have Internet access than other schools (Center for Media Education, 1996). By 1999, these differences had disappeared: all schools were equally likely to have Internet access. The proportion of public school classrooms connected to the Internet rose from three percent in 1994 to 63 percent in 1999, and access is expected to expand even further due to Federal subsidies.

While most schools may have Internet access, access within classrooms varies widely. As of Fall 1998, 39 percent of classrooms in poor schools were connected to the Internet, compared to 74 percent in wealthier schools (U.S. Department of Education, 2000). The percentage of classrooms with Internet access in high poverty public schools did not increase between 1998 and 1999, while the percentage of connected classrooms in schools with lower concentrations of poverty did increase.

Student Access to Computers

According to the President's Committee of Advisors on Science and Technology (1997), a ratio of four to five students per computer is considered reasonable for effective learning. In 1999, however, the number of students per instructional computer in public schools was approximately six, the same as in 1998 (U.S. Department of Education, 2000).

The ratio of students per instructional computer with Internet access improved from 1998 to 1999—decreasing from 12 to nine per computer—although differences remain among schools with different characteristics. Medium-sized and large schools had more students per computer with Internet access (nine and ten, respectively) than small schools (six). Urban schools had more students per computer with Internet access (11) than rural schools (seven). The poverty level of schools created the largest differences in computer access: the poorest schools had 16 students per computer with Internet access, compared to seven for schools with the lowest concentration of poverty (U.S. Department of Education, 2000).

School Internet Connections

The type of network connections used by public schools and the speed at which they are able to connect have changed greatly since the mid 1990s. However, only 50 percent of the schools with the highest concentration of poverty, and 60 percent of elementary schools, were connecting to the Internet using dedicated lines,

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which enable faster connections, whereas 77 percent of secondary schools, and 72 percent of schools with the lowest concentrations of poverty, had such lines (U.S. Department of Education, 2000).

The Value of Internet Content for Underserved Communities

While underserved communities are increasingly gaining access to the Internet, often in public facilities, many do not find the content to be of much personal value. There are four significant content deficiencies (Children's Partnership, 2000):

Lack of Local Information. The Internet offers scant information about local communities, which particularly affects users living on a limited income. These users would benefit from the following: (1) local job listings, including those requiring entry-level skills; (2) listings for affordable local housing; and (3) information about community resources and ways to become involved in local concerns.

Literacy Barriers. The vast majority of information on the Internet is written for an audience with an average or advanced literacy level. Nevertheless, 44 million adults in the U.S. (22 percent) have below average literacy skills and cannot fully function in everyday life. Thus, content for these users would include the following: (1) learning resources for acquiring literacy skills, preferably with multimedia components; and (2) preparation for earning a high school equivalency degree.

Language Barriers. An estimated 87 percent of the documents currently on the Internet are in English, although English is not the primary language for over 32 million people in the U.S. Useful content for non-English speakers would include the following: (1) translation tools; (2) bilingual instructional materials; and (3) materials to meet information needs in a variety of languages.

Lack of Cultural Diversity. The Internet lacks material reflecting the large variety of ethnic communities in the U.S. Sites relevant to these communities would contain information on the following: (1) unique heritages and cultural practices; (2) local cultural interests; and (3) health and other vital issues for particular racial and ethnic groups.

Policies to Increase Access

People with lower incomes and education levels, people of color, and the unemployed are using the Internet at higher rates to search for jobs or take courses. Thus, community facilities such as schools and libraries will continue to play an important role in providing access to the Internet, although widespread home access is a national goal.

Public policies and private initiatives are attempting to expand affordable access to information resources in both homes and communities. Pro-competition policies to reduce the cost of basic phone and information services, and universal service policies, will continue to be important efforts. Programs include assistance for low-income households, such as the Federal Communications Commission's (FCC) Lifeline Assistance and Link-Up America and various state programs; and support for high-cost regions of the country, such as the FCC's Universal Service Fund and Federal and state rate-averaging programs.

The Education rate (E-rate) program is perhaps the best known universal service initiative. It was established by Congress to make services and technologies in telecommunications available to schools and libraries at discounted rates based on the income level of communities and an urban or rural location. In 1997, the FCC adopted a Universal Service Order outlining a plan to guarantee that all eligible schools, libraries, and rural health care providers have affordable connections to the Internet. By making $2.5 billion available annually, this program provides discounts on certain telecommunications services to eligible organizations. The plan also includes a $400 million fund to lower the prices rural health care providers pay for telecommunications services (Schools and Libraries Corporation, 1997).

Finally, the Commerce Department's National Telecommunications and Information Administration has established a new web site with links to Federal programs designed to close the digital divide (http://www.digitaldivide.gov). The site lists grant and loan programs for increasing Internet access in currently underserved areas, and provides links to several private sector educational and funding initiatives.

—**James M. Lonergan, Teachers College, Columbia University**

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ERIC Clearinghouse on Urban Education, Institute for Urban and Minority Education, Box 40, Teachers College, Columbia University, New York, NY 10027, (800) 601-4868. Erwin Flaxman, Director. Wendy Schwartz, Managing Editor.